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A VARIETY OF BASILARCHIA ARCHIPPUS.

BY JOHN H. COOK AND FRANK E. WATSON, ALBANY, N. Y.

Basilarchia archippus, new variety, *lanthanis*.*—Differs from *archippus* proper in that the extramesial black stripe crossing the secondaries is, on the upper surface, subobsolete.

The type specimen (Pl. 5, fig. 2) was taken at Albany, N. Y., in June, 1902. The paratype, illustrated (fig. 1), came from Hudson, N. Y. These butterflies are representative of a series of twelve, eleven of which are still in the possession of the authors. More than a score of others have been seen within the last ten years, and intergrade forms are common.

While in general opposed to the practice of designating a form as a variety merely because it differs more or less strikingly from an arbitrarily assumed norm, we have considered that in the present instance an exception should be made. The value of a name is measured by its usefulness, and should *lanthanis* prove to merit the attention of no one but the catalogue-maker, it will be justly ignored. If, however, the loss of the black stripe is a logical step in the evolution of the wing design of *archippus*, whereby its mimicry of *Anosia plexippus* becomes more complete, the existence of this variety may be a fact of more than ordinary biological interest.

The problem which the species presents will be discussed in a paper soon to appear in the Proceedings of the Entomological Society of London, and as a distinctive name for the stripeless variety will facilitate that discussion, it was thought advisable to publish this brief description in advance.

SOME NEW NORTH AMERICAN JASSIDÆ.

BY E. D. BALL, LOGAN, UTAH.

Phlepsius attractus, n. sp.—Resembling *floridanus*, but with an evenly rounding vertex and a smaller number of spots on the costa. Length, ♂ 4.25 mm.

Vertex twice wider than long, scarcely half the length of the pronotum, margins parallel, the anterior one rounding evenly to the front

*λανθάνω.—I escape notice.

through its entire length. Front regularly tapering to the wedge-shaped clypeus. Pronotum set into the head as in *floridanus*.

Colour: Vertex pale creamy, an oval brown spot on either side the disc connected to the posterior margin by a line. Pronotum and scutellum milky, sparsely mottled with brown. Elytra milky, sparsely reticulated with brown, a few darker spots along the margin, and number of milky spots on the disc. Face finely irrorate with pale tawny.

Genitalia: Male valve broad and short, bluntly rounding; plates small, margins slightly concave, their rounding apices upturned, about three times the length of the valve. Disc of the plates ivory-white, polished.

Described from two males from Florida, from Mrs. Slosson. This species approaches *costomaculatus* in the shape of vertex and the lack of dark ornamentation, but is quite distinct in other characters.

Phlepsius floridanus, n. sp.—Resembling *irroratus*, but smaller, form of *pulchripennis*, but with a longer vertex and about seven spots on costa. Length, ♀ 5 mm.

Vertex twice wider than long, half the length of the pronotum, a trifle longer on middle than against the eye, disc almost flat, margin rounding to front except for the slightly conically-produced apex, front broad above, almost regularly narrowing to the clypeus. Pronotum long, more than half its length within the curve of the head. Elytra long, appressed, venation as in *irroratus*.

Colour: Vertex coarsely irregularly inscribed with tawny brown, a circle around each ocellus, a spot on the apex of vertex, a dash on either side, a crescent on the disc connected with the apex by a line and four points on the posterior margin ivory-white. Pronotum obscurely mottled with brown and white. Scutellum soiled yellow, with three ivory points. Elytra milky, sparsely but rather evenly reticulate with tawny, about seven dark spots along costa. Face finely irrorate with tawny, a few spots above and short arcs below ivory-white.

Genitalia: Female segment rather long, rounding posteriorly, with a pair of small rounding lobes on the median fourth.

Described from a single female from Biscayan Bay, Florida, from Mrs. Annie Trumbull Slosson. This species is intermediate in character between the *costomaculatus* group and the regular Phlepsids, but probably belongs with the former.

Phlepsius tubus, n. sp.—Resembling *fuscipennis*, Van Duzee, but smaller and stouter, with a narrower vertex and more of a tawny fulvous shade. Length, 5.25 mm.

Vertex rather narrow, slightly longer than in *fuscipennis*, parallel-margined and slightly depressed. Anterior margin merged with front, except for a slight production at apex. Front broad and short as in *fuscipennis*. Pronotum slightly wrinkled in the female, distinctly so in the male. Elytra broad and slightly flaring.

Colour: Vertex, pronotum and scutellum fulvous, irrorate with tawny, the posterior disc of pronotum and a cloud on scutellum darker. Scutellum with the tip and a pair of lateral spots ivory-white, the lateral spots pointed behind and exceeding the line of the margin. Elytra finely reticulate and slightly irrorate with tawny. A few irregular darker spots on the margin and paler ones on disc. Face finely irrorate with pale tawny, without markings.

Genitalia: Female segment broad and rather short, posterior margin divided into four evenly rounding lobes equal in length, the median pair slightly broader than the lateral ones, and black margined, median cleft slightly deeper than the lateral ones. Male: valve long, triangular, plates strongly gibbous at base, margins slightly narrowing to the broad, roundingly truncate tips; together forming a broad blunt-tipped spoon, scarcely as long as its basal width, and only equalling the tubularly inflated pygofers.

Described from a single pair taken at Washington, D. C. This species, *pusillus*, and the following one connect the *Uhleri* group with the more typical Phlepsids.

Phlepsius utahnus, n. sp.—Resembling *pulchripennis*, but smaller, lighter coloured, and with a longer, narrower vertex. Length, ♀ 5 mm.; ♂ 4.5 mm.

Vertex obtusely triangular, as long as the basal width, and almost as long as pronotum, one-third longer on middle than against eye, disc flat, margin bluntly rounding to the front. Front long, narrow and parallel-margined above, narrowing below to the slender parallel-margined clypeus. Elytra long and narrow, venation obscure and somewhat irregular.

Colour: Vertex yellow, ocelli and four points on anterior margin tawny or brown; disc with a large black spot, concave in front except for a triangular incision on the median suture, pointed behind where it reaches the base, the surface finely irrorate with yellow. Pronotum irregularly irrorate with brownish fuscous. Scutellum yellow, a pair of quadrate reticular areas inside the basal angles and a pair of round dots against apex, black. Elytra milky, the nervures pale tawny, surface

irregularly irrorate and sparsely reticulate with brownish-fuscous. The reticulations are gathered into several more or less definite spots along posterior half of costa and one in the inner anteapical cell. The clavus and adjacent parts of corium with a number of irregular translucent ivory-white areas. Face finely irrorate in the male, sparsely so in the female.

Genitalia: Female segment short and truncate, slightly medianly carinate, pygofers short and stout; male: valve long, roundingly pointed, the lateral margins concave at base, plates together equilaterally triangular, twice the length of the valve.

Described from three specimens from "Chads," Utah. A male from Arizona and a female from California probably belong here, but are not in shape to definitely determine.

Phlepsius tigrinus, n. sp.—Resembling *tubus* and *Uhleri*, but larger and darker. Tawny brown, with sparse reticulations on elytra. Length, ♀ 6 mm.

Vertex three times wider than long, slightly sloping, the posterior margin elevated, anterior margin rounding in front, almost parallel with posterior one; apex scarcely produced. Front broad, the margins almost straight. Pronotum smooth. Elytra moderately long, distinctly flaring.

Colour: Vertex tawny fulvous, pronotum tawny brown, with the anterior margin shading to the colour of the vertex, and the disc irrorate with milky white. Scutellum pale yellow, the basal angles irrorate with tawny, and the apical third shading to ivory-white. Elytra very sparsely reticulate and closely, finely irrorate with tawny. The irrorations omitting a few irregular areas.

Genitalia: Female segment broad and short, about twice the length of the preceding, the posterior margin slightly emarginate, with the median third weakly produced and dark margined.

Described from a single female from Washington, D. C. This species shows traces of the banding of *Uhleri*, but is easily separated by the larger size and distinct genitalia.

Eutettix (Mesamia) illumina, n. sp.—Short, stout, black, with a hyaline band before apex of elytra. Length: ♂ 4 mm.

Vertex hardly twice wider than long, anterior margin slightly more rounding than posterior, disc slightly sloping to the definite anterior margin. Front convex, broad above, margins straight, narrowing to

clypeus. Pronotum finely wrinkled, elytra moderately long, widely flaring at the apices, venation obscure at the base, central anteapical cell irregularly reticulate. Male: valve small, triangular; plates triangular, twice the length of the valve.

Colour: Deep shining black; a narrow line on the vertex margin ivory-white, a band across the elytra before the apices, including the apex of clavus and bases of the four apical cells, milky hyaline, this band broken into irregular, more or less oval spots by the black nervures, the largest spot being in the fourth apical cell. Below black, the legs creamy yellow, dorsal surface of posterior pair lined with black.

Described from a single male from Arizona. In structure this species seems to be intermediate between the *nigrodorsum* and *vitellina* groups, so does not fit well in either. In colour it is far removed from anything in the genus.

Eutettix (Mesamia) animana, n. sp.—Form of *Johnsoni* nearly, smaller and darker, with the nervures distinct. Length, ♂ 5 mm.

Vertex with the disc flat, anterior margin a trifle more curved than the posterior, passage to front more rounding than in *Johnsoni*, front as in that species. Elytra long, slender, appressed, venation distinct, the second cross nervure often rudimentary or wanting, central anteapical cell long, constricted in the middle.

Colour: Vertex creamy yellow, six black dashes in pairs on the anterior margin, pronotum mottled with milky and brown, yellowish in front. Scutellum creamy yellow, transverse impressed line black. Elytra subhyaline, faintly washed with tawny brown, nervures brown, becoming darker on the costa; a pair of oval, milky-white spots beyond the middle of the clavus. Face dirty yellow, a spot above the antennal ledge and a broken line in front, just beneath the vertex margin, black.

Genitalia: Male, valve large, triangular, with apex blunt, plates rapidly roundingly narrowing for half their length, then gradually tapering to the rounding points, apical portion convex in both diameters.

Described from a single male taken at Animas, near Durango, Colorado, by the writer. It is intermediate in appearance between *fenestrata* and *Johnsoni*, but quite distinct in structure from either.

Eutettix (Mesamia) aurata, n. sp.—Form of *Johnsoni* nearly, smaller and paler. Golden yellow, without definite markings. Length, ♀ 4 5 mm.

Vertex slightly sloping, almost parallel-margined, passage to front slightly rounding. Front broader at base than in *Johnsoni*. Elytra

moderately long and slender, venation indistinct. Female segment short, the posterior margin in the form of an obtusely angled triangle, with the apex slightly produced, the pygofers short and stout.

Colour: Pale golden-yellow, the elytra coriaceous and uniform in shade with the rest of the body. The anterior margin of vertex with an ivory line, behind which there are faintly indicated in brown the six points usual in this group. Face and below yellow, traces of alternate light and brown arcs on disc of front.

Described from a single female from Washington, D. C. This is by far the smallest member of this subgenus, and will be readily recognized by its uniform golden colour and distinct genitalia.

Eutettix amanda, n. sp.—Form of *Mildredæ* nearly, smaller, paler, with oblique brown markings on elytra. Length, ♀ 5 mm.

Vertex convex, margin rounding to front except at the apex, which is bluntly conically pointed. Front narrower than in *Mildredæ*, margins sloping directly into clypeus. Female segment moderately long, posterior margin rounding, median fifth slightly excavated, with a broad blunt tooth exceeding the margin by half its width.

Colour: Vertex creamy, with two irregular oval spots on the disc pale tawny. Pronotum milky, clouded with pale greenish fuscous, except for a broad median stripe, which becomes ivory-white on the scutellum, where it includes all but the brown basal angles. A transverse brown dash inside and behind either eye, with a line extending in towards the centre of the pronotum. Elytra pale, with a faint brown wash, and heavy brown or fuscous markings, as follows: the scutellar and sutural margins of clavus before the middle, the apex of clavus, a spot near base of corium, an oblique dash before the middle in line with the apex of clavus, a transverse band on second costal nervure, and a cloud on the apex. All of the brown markings, except at base and apex, are irregularly margined with ivory-white. Face dirty yellow, pygofers castaneous.

Described from a single female from Arizona. This is a new and quite distinct addition to the handsome species of this group.

Scaphoideus Catalinus, n. sp.—Form of *blandus* nearly, smaller, and with a shorter vertex. Tawny yellow, with two white bands on elytra. Length, ♀ 4 mm.

Vertex roundingly rectangular, as long as its basal width, and almost equalling the pronotum, disc flat or slightly depressed. Elytra short, stout, Platymetopius-like in form and venation, second cross nervure

present, and a number of reflexed veinlets to the costa. Female segment short, lateral angles rounding, posterior margin rounding, with a deep, narrow, median slit extending almost to the base.

Colour: Vertex and pronotum lemon-yellow, a pair of faint stripes adjoining the median line on disc of vertex, and a few milky irrorations on disc of pronotum. Scutellum orange, with three ivory points on apical portion. Elytra milky, washed with pale brown, omitting a definite band across the second cross nervure, and an irregular broader one before apex. Nervures brown, shading to black on the white bands, and reflexed veinlets.

Described from a single female from near the Catalina mountains, in Arizona. In venation and general appearance this species approaches the genus Platymetopius, but it lacks the structure of vertex and front found in that genus, and seems more closely related to *blandus* and its allies.

Scaphoideus pellucidus, n. sp.—Size and form of *blandus* nearly, darker, and with a much longer vertex. Length, ♀ 5.75 mm.; ♂ 5 mm.

Vertex strongly, acutely angular, the margins straight, and the disc flat or slightly depressed, distinctly longer than the pronotum. Head, as seen from the side, with the vertex margin produced and foliaceous. Front concave above, convex below, broad above, margins angularly narrowing to the antennæ, then gradually sloping to the constricted clypeus. Elytra long and slender, venation obscure, spaces between the nervures and along the margins irregularly divided by cross nervures and pigment lines.

Colour: Vertex lemon-yellow, the margins before the eyes and the median line narrowly white and closely lined with black, usually a pair of broad sanguineous stripes outside the median black ones, and often extending across the pronotum in highly-coloured specimens. Pronotum olive-brown on disc, mottled with milky, anterior margin shading to yellow. Elytra washed with iridescent olive brown, becoming fuscous toward the apex and costa. Whole surface interspersed with numerous irregularly oval pellucid spots in sharp contrast.

Genitalia: Female segment moderately long, posterior margin rounding, with the median fourth roundingly produced and semicircularly notched; male: valve obtusely triangular, plates gibbous at base, then triangularly produced, with the apices acute.

Described from eight examples from Stanford and Colfax, California. The foliaceous vertex renders this a strikingly distinct species in the genus.

Scaphoideus scrupulosus, var. *reductus*, n. var.—Form of *scrupulosus*, but smaller, and entirely lacking the brown banding of that species. Length, ♀ 4.5 mm.

Vertex pale creamy, with a pair of large quadrate spots on the disc, separated by their width and connected by a line along the margins to a pair of round spots against the eyes, black. Pronotum milky, mottled with fuscous. Elytra milky, finely and uniformly reticulate with fuscous, apical cells black, with ivory spots at base. Female segment more rounding than in *scrupulosus*, with a shallower notch and a long strap-shaped tongue extending two-thirds its length beyond the segment.

Described from three females from Colfax, California. The specific limitations in this genus are very difficult to determine. A study of a larger series may prove this to be a distinct species, but the present material will hardly warrant its recognition.

DISSECTING SMALL BEETLES.

Prof. Wickham's article in the January issue of this magazine on "The Preparation of Beetles for the Microscope," is an excellent one, which, had it appeared ten years ago, would have saved to many of us a great deal of trouble and spoiled specimens.

In connection with this subject I should like to say a few words about my method of dissecting very small beetles of the Staphylinid subfamily Aleocharinæ.

I do not dissect the specimens first, and do not subject them in parts to the effects of the different fluids, but put the whole specimens in alcohol, then in concentrated carbolic acid solution, then in oil of cloves. The specimens go from the last named medium on a cover-glass; there I first cut the head off and transfer it to the cover-glass of the permanent mount, where, with very fine needles, the parts of the head are dissected and placed in proper position.

The prothorax and front legs are then transferred similarly to another cover-glass, and finally the meso- and metasternum (minus wing-covers and wings) to a third cover-glass, sometimes the abdomen to a fourth glass.

As dissecting instruments I use two steel needles, which are fastened in handles and then sharpened under the hand-lens. They are sharpened so that they represent a miniature double-edged flat scalpel with very sharp point.—A. FENYES, Pasadena, Cal.

NEW SPECIES OF EXOTIC LEPIDOPTERA.

BY GEORGE A. EHRMANN, PITTSBURG, PA.

Papilio echo, n. sp.—Male. Closely allied to *P. bootes*, Westw. The outlines of all the wings are the same as in *P. bootes*, but the whitish-crimson spots in the tails are absent; the crimson lunated spots on the upper side of the hind wings that are so prominent in the latter are very small, almost wanting. On the under side of the secondaries the lunated spots at the anal angle are smaller and more separated than in *P. bootes;* in the upper median cell there is a faint reddish streak, whilst in *P. bootes* there is a large, well-developed semi-lunated white spot; the two white discal spots on the secondaries are smaller; the red or crimson area at the base of both pairs of wings on the under side is also smaller; the tails are a little longer, but not as long as they are in *P. lama*, Oberth, or *P. janaka*, Moore.

Exp. 5 inch. Hab.: Khasia Hills, British Burmah.

Type in my collection.

This species is very interesting, as belonging to the *bootes* group. It lacks that important character of having the spots in the tails. The type of this species came into my possession through the late Bernhard Gerhard.

Papilio ikusa, n. sp.—Male allied to *P. mencius*, Feld., but not so large; the scaling is less dense on all the wings, which gives it a semi-transparent appearance; the red collar at the back of the head is wanting; the red between the eyes is replaced by black; the dentations of the hind wings are more sharply defined; the tails are not so long and less spatulated, and on the upper side of the hind wings, in the upper, median and lower cells, there is an ill-defined orange spot on each near the outer margin.

The ground colour on the under side is much lighter than above, and the crimson lunated spots that are so prominent in *P. mencius* are here replaced on the submarginal space by seven round orange-coloured spots anal valves are also orange.

Type in my collection.

Exp. 3 in. Hab.: Simoda, Japan.

I received this species from the Rev. Mr. Loomis, of Yokohama, Japan, with the above locality attached to it. In studying this singular form, the only conclusion that I can arrive at is that we have another race

to contend with in the mountains of Central Japan that bears a similar relation to *P. alcinous*, Klug., and *P. mencius*, Feld., as we find in *P. lama*, Ober.; *P. plutonius*, Ober., and *P. janak*, Moore.

Papilio potamonianus, n. sp.—Male allied to *P. laterillianus*, Godt., and *P. cyrnus*, Boisd., but smaller. On the upper side of the fore wings there is a series on the submarginal space of fourteen small canary-green (or yellow) elongated spots; in *P. cyrnus* there are only seven, but they are larger; the outer spots in the discoidal cell are differently shaped, especially the larger spot, which is shorter and broader; there are also two additional small, roundish spots at the inner end of the large spot (sometimes one of these spots is present in the same position in the female of *P. laterillianus*). The hind wings have the outer margin more pointed in the middle than either of the above species, and on the under side the most notable features are the heavy cast of crimson at the base of both pairs of wings, and the very light brown shading on the outer margin of the hind wings.

Exp. 3½ in. Hab.: Upper Congo, W. Africa.

Type in my collection.

I dedicate this handsome specimen to Potamon, the founder of the great schools at Alexandria, in ancient Egypt.

Eudamus Boisduvalii, n. sp.—Male allied to *E. antæus*, Hew. The ground colour on the upper side of all the wings is a uniform brown; in the middle of the costa there is a small orange spot, below this there is a truncate yellowish semitransparent spot; in the limbal area there are three small round spots of the same colour; on the lower submarginal vein just below the limbal area there is a well-defined orange spot.

Hind wings: In the median cell of the outer submarginal space there are two small elongated orange spots; all fringes light buff; the under side of palpi is light brown; thorax and legs reddish-brown; abdomen buff, with a faint brown lateral band. Under side of fore wings the same as above, but much lighter; on the under side of hind wings the ground colour is a rich chocolate-brown, and across the disc there are two silvery-white bars, in the outer bar the two orange spots so conspicuous above are here repeated.

Exp. 2⅛ in. Hab.: Suapure, Venezuela, S. America.

Type in my collection.

Captured on Nov. 4th, 1899, by Mr. Edw. A. Klages. All the species of Lepidoptera so far described from Suapure, Venezuela, S. A.,

by the writer, were collected by Mr. Klages, who endured much privation and suffering during his expedition along the Orinoco river, which hindered him greatly in procuring a large number of specimens; nevertheless, he can rest with the satisfaction that the number of species collected by him more than repay the difficulties encountered.

Achylodes heros, n. sp.—Male. This species is intermediate between *A. sebaldus*, Fahr., and *A. melander*, Cram.; the ground colour is much lighter brown than either of the above-mentioned species on the upper side; also the discal black bands are more widely separated; the outer marginal band is very narrow.

On the upper side of the hind wings the most conspicuous character is the large bright buff lunated spots in the anal angle. On the under side of the fore wings the ground colour is much paler than above; the markings are very close to those of *A. melander*. Under side of the hind wings much the same as in *A. melander*, except that the anal angle is buff instead of orange, and the abdominal margin is also orange in colour, which extends to the base of the wing.

Exp. one inch and seven-eighths. Hab.: Suapure, Venezuela.

Type in my collection.

Sphingicampa Smithii, n. sp.—Male. Head pale buff; antennæ brown; upper side of the thorax pale brown, which colour grows lighter as it extends towards the tip of the abdomen, where it is a pale buff on the last three joints.

Fore wings of a uniform chestnut brown along the costal area; the outer margin and inner space to the base of the wing have a purplish cast, and through this space there are three pale brown bars, beginning at the lower side of the discal cell, and extending to the inner margin. The hind wings are pale brown, the basal area is much lighter. Under side of the fore wings is yellowish, with a suffusion of brown; the costal and outer margins are tinted with purple; under side of the hind wings is uniform pale buff; the thorax, abdomen and legs are also buff.

Exp. two and one-eighth inches. Hab.: Rio Janeiro, Brazil, S. America.

Type in my collection.

This fine moth was captured by Herbert T. Smith in the latter part of November, 1888, and Mr. Smith has informed me that this specimen was the only example seen during all his rambles in South America.

NOTES ON TENTHREDINOIDEA, WITH DESCRIPTIONS OF NEW SPECIES.

BY S. A. ROHWER, BOULDER, COLO.

(Paper III.)

Pteronus Cockerelli, n. sp.— ♀. Length, 6 mm.; length of anterior wing, 6 mm.; length of antennæ, 5 mm. Head and antennæ shining; sparsely, finely punctured. Clypeus distinctly circularly emarginate; lobes rather broad triangular, obtuse at apex. Antennal foveæ small, not very distinct. Middle fovea deep, oval, wall rather pointed toward the clypeus. Side walls of the ocellar basin sharp, strong. Frontal crest strong, slightly broken in the middle. Lateral ocellar furrows broad, shallow. Antennæ long, third and fourth joints equal; apical joint slightly longer than the preceding one. Maxillary palpi long; last two joints equal, the third from apex the shortest; third joint subclavate toward apex. Claws deeply cleft, teeth equal; the inner tooth is perhaps a little the stouter. Basal joint of hind tarsi a little longer than 2 + 3. Venation normal; the first transverse cubitus faint; third cubital cell not unusually broader at apex than at base; upper discal cell of hind wing exceeding the lower on the outer margin. Stigma short, very broad, ovate, rounded at apex; not quite twice as long as broad in the widest part. Sheath broad, short, obliquely truncate at the apex; marginal hairs very minute. Cerci short, stout. Head reddish-brown, with a black spot around the ocelli. Thorax, except the angles of pronotum and tegulæ which are pallid, and the lateral lobes of mesonotum posteriorly and scutellum which are brownish, *black*. Abdomen, except basal plates and basal part of first segment and apex of sheath which are black, *reddish-brown*. Four anterior legs, coxæ, trochanters and basal half of posterior femora, *pallid* (the anterior femora are slightly reddish). Apical half of posterior femora, apex of posterior tibiæ and their tarsi *black;* basal two-thirds of posterior tibiæ *reddish-brown*. Antennæ, except two basal joints, bright *rufo-ferruginous*. Wings yellowish-hyaline, iridescent; venation dark brown, costa somewhat and extreme basal part of stigma pallid.

Habitat.—Campus of University of Colorado, Boulder, Colo., August, 1908. Collected by Prof. T. D. A. Cockerell, to whom I take great pleasure in dedicating this pretty species.

In Marlatt's Revision of the Nematinæ of N. America, this species runs to *tricolor*, Marl. (New Hampshire), but it differs as follows from his

description of that species: Length, 6 mm.; frontal crest slightly broken; middle fovea ovate; third cubital cell not twice as wide at the apex as at the base, and the head is much paler. Marlatt does not say anything about the colour of the antennæ in *tricolor*, but they are probably black, as he would have undoubtedly have mentioned such bright red ones as *Cockerelli* has.

Blennocampa Gillettei, Weldon (CAN. ENT., Sept., 1907, p. 304).—♀. Length, 6 mm. Clypeus hardly emarginate, rather rounded at apex. Ocellar basin well defined, the upper wall more prominent; middle fovea large, deep, well defined. First antennal joint longer than second; third nearly as long as 4+5. Hind basitarsus as long as 2+3+4. Tarsal claws short, with a large tooth and a smaller posterior one; pulvilli large. Scutellum shining, with a few large punctures posteriorly. Transverse radial in the apical fourth of cell; at a different angle from the third transverse cubitus; third cubital cell almost twice as broad on apical margin as at base; posterior wings with one discal cell. Sheath stout, broad, sharp on upper apical margin, rounded on lower. Colour shining black; edge of pronotum, tegulæ, legs below knees, pallid; middle tarsi slightly infuscate, the posterior ones more strongly so. Wings dusky-hyaline; nervures black, lower half of stigma paler.

Habitat.—Ft. Collins, Colo., May 15, 1892 (C. P. Gillette). On raspberry.

Notes from the type. Probably belongs to *Neocharactus*, MacG.

Neocharactus Californicus, n. sp.—♀. Length, 7 mm. Clypeus truncate, roughened like the rest of the head. Head with large confluent punctures; cheeks shining, with small, sparse punctures. Pentagonal area wanting; a slight depression around anterior ocellus. Lateral ocellar furrows rather broad and shallow to level of ocelli; wanting below ocelli. Middle fovea large, basin-like, U-shaped, open at the bottom. Thorax above rugose; scutellum with large punctures and small rugæ. Pleura shining, almost impunctate. Stigma broad, rounded on the lower margin, slightly broader at the base. Transverse radial curved, joining the radius at about the apical fourth of the third cubital cell. Inner claw-tooth rather large, nearer the base of the claw is another small tooth. Abdomen shining. Sheath parallel sided until near the apex, where both sides taper to an obtuse apex; black, with a more or less dark blue-metallic tint. Apical and lower margins of the sheath testaceous. Legs below the knees creamy-white; apices of tarsi and tibiæ somewhat dusky; claws piceous.

Wings yellowish-hyaline; nervures and stigma dark brown; rather densely covered with short gray hair.

Habitat.—Palo Alto, California, Feb. 29, 1892. Received from R. W. Doane.

The innermost tooth of the claw is rather small, and there is a little doubt in my mind whether this species should be placed in the genus *Neocharactus*, MacG. However, it seems to be related to *N. Bakeri*, and may well be placed with it. Dr. MacGillivray does not give the sex of his specimens. I judge they are males. If this is the case, *Californicus* may be the ♀ of *Bakeri*, but it differs as follows from Dr. MacGillivray's description: Head, thorax and abdomen without white markings; head coarsely punctured; the middle fovea not "twice as long as broad," and the wings yellowish.

The third antennal joint is about as long as 4 + 5.

Monophadnus multicinctus, n. sp.—♂. Length, 8 mm. Clypeus truncate, in the middle very narrowly, slightly notched; rugose. Superclypeal suture rather strong. Middle fovea elongate transversely, with a branch on each side, which extends to the lateral ocellar furrows, which are strong, and extend to the level of the antennæ. Ocellar basin triangular, along each upper side is a faintly-indicated furrow; at the apex these furrows join and extend backward to the occiput. The transverse ocellar furrow is faintly indicated. Head around the ocelli punctured, the rest reticulate. Antennæ robust, third joint as long as 4 + 5; joints four, five and six constricted at the base beneath. Thorax (including scutellum) above with shallow, irregular punctures. Scutellar appendage highly polished, not at all carinated. Pleura shining. Stigma broad at base, acuminate at apex. Tran. radial interstitial, or nearly so, with the third tran. cubitus. Legs rather hairy. Claws simple. Abdomen shining, black: pronotum, tegulæ luteo-testaceous; cenchri, edge of basal plates in the middle, edge of all the dorsal and ventral abdominal segments narrowly white. Extreme apex of femora, basal part of tibiæ pallid; rest of legs below femora strongly infuscated. Wings hyaline, iridescent; venation dark brown, lower half of stigma pallid.

Paratype differs from the type as follows: Smaller, 6.5 mm.; the pronotum is black, and third antennal joint is slightly emarginate beneath.

Habitat.—Type, Washington, D. C., May 6 (N. Banks); paratype, Falls Church, Va., April 27 (N. Banks).

Related to *M. tiliæ*, Nort., from which it may be separated by the truncate clypeus, white bands of the abdomen and other characters.

Labidia Doanei, n. sp.—♀. Length, 6.5 mm.; robust. Clypeus large; very slightly, broadly emarginate; punctured like front. Labrum rounded at the apex, rather large. Head closely, rather coarsely punctured, cheeks not so strongly so. Lateral ocellar furrows more or less distinct from occiput to antennæ. Middle fovea indicated by a shallow circular impression. Antennæ as usual for genus; third joint as long as 4+5. Thorax not as coarsely punctured as the head. Stigma rounded on the lower margin, a little broader at the base. Third cubital cell as long on the cubitus as the length of the third transverse cubitus; about a third longer at apex than at base. Claws deeply cleft, teeth equal. Basal plate not divided in the middle, or, at least, not strongly so. Sheath straight above, rounded below, but not strongly so, *black*. Palpi, tegulæ, angles of pronotum, scutellum sometimes, apical margin of basal plates, apical margin of dorsal and ventral abdominal segments and the sides of all the segments *creamy-yellow*. Legs mostly creamy-yellow, but the following are black: coxæ, trochanters, a line above on the femora and tibiæ (sometimes interrupted on the tibiæ), and the tarsi, except beneath on the anterior ones sometimes. Wings hyaline, slightly iridescent; venation dark brown, the costa and stigma reddish-brown.

Habitat.—California. Specimens from Stanford University, March 9, 1905; Palo Alto, March 31, 1893, and April 27, 1895.

Named in honour of R. W. Doane, who kindly sent the specimens.

This species is at once known from *L. originalis*, var. *opimus*, Cress., by the smaller size, the black and almost truncate clypeus, the broader and more rounded stigma (the stigma of *opimus*, Cress., is rather slender and elongate), the shorter third cubital cell and other characters.

Labidia originalis, var. *opimus*, Cress.—I have examined specimens of this species from the following localities: 20 ♀ ♀ above Silverton, Colo., July, '03, alt. 12,000 ft. (C. R. Jones); ♀, Graymont, Colo., July (C. P. Gillette); Steamboat Springs, Routt Co., Colo., July (C. P. Gillette); ♀, Home, Colo., Aug.; Gore Pass, Colo. (C. P. Gillette); Cameron Pass, Colo. (C. P. Gillette); Little Beaver Creek, Larimer Co., Colo., alt. 9,100 ft. (C. P. Gillette). The above specimens are in the collection of the Colorado Agricultural College. ♀, Ute Creek, Costilla Co., Colo., alt. 9,000 ft., July 1, 1907; ♀, Russell, Costilla Co., Colo., July 12, 1907. The last two specimens are in the collection of the University of Nebraska. They were collected by H. S. Smith.

The above specimens vary a good deal among themselves; some of the varieties are in colour the same as *originalis*, Nort., and as no structural character can be found to separate *opimus* from *originalis*, I think that they should be considered the same. The above specimens vary as follows: The abdominal bands form a narrow line to a rather broad band; the pleural mark frequently wanting; the amount of black on the legs varies; the scutellum in one case is black; and the marks above the posterior coxæ are sometimes reduced.

This species has a very wide range in Colorado; it ranges from the Upper Austral Zone to the Arctic Alpine. It was taken at Olympia, Washington, by T. Kincaid (MacG., CAN. ENT., Oct., 1893, p. 240).

PROTEMPHYTUS, new genus.

Head and thorax opaque, with dense, large punctures. Malar space distinct; clypeus emarginate; antennæ stout, moderately short. Tarsal claws simple, rather long. Fore wings with three cubital cells, the first long and receiving the first recurrent nervure a little beyond the middle; second short, wider on the apical margin, receiving the second recurrent nervure about the middle. Transverse radial joining the radius beyond the second transverse cubitus. Hind wings without a discal cell; lanceolate cell of hind wings shortly petiolate at apex. Species small.

Type *Emphytus coloradensis*, Weldon.

This genus contains so far only one species, *coloradensis*. It has the following bibliography:

Emphytus coloradensis, *Weldon*, [CAN. ENT., Sept., 1907, p. 304]. Original description.

Emphytus coloradensis, *Roh.* [CAN. ENT., June, 1908, p. 179], gives some notes to aid in determination.

Protemphytus is near to *Emphytus*, Klug, but may be separated by the opaque head and thorax, and the different position of the transverse radius.

Lyda nigripes, Cress.—I have seen a ♂ of this species from Calif., collected at Stanford University. It belongs to the genus *Lyda*, as restricted by Dr. Ashmead.

Lyda nigrita, Cress.—I have also seen a ♂ of this species collected at the same place as *L. nigripes*. It also belongs to the genus *Lyda* as restricted by Dr. Ashmead. Both were received from Mr. Doane.

ON THE GENERA VENUSIA, EUCHŒCA AND HYDRELIA.

BY LOUIS B. PROUT, LONDON, ENGLAND.

In Mr. Pearsall's valuable "Review of our Geometrid Classification —No. 3,"* a venational character is not mentioned, which—with the rarest possible exceptions, none being known to me save Alsophila—is as reliable as the structure of veins 5 and 8 of the hind wings, and which has been used as generic in the Larentiinæ (= Hydriomeninæ) by Hampson, and more recently by Dr. Turner in an able revision of the Australian genera of the subfamily.† I allude to the structure of the discocellulars of the hind wings. Ignoring minor variations which Mr. Pearsall might prefer to place in his "auxiliary group," there are two *essentially* different forms: (1) simple, or with a single angle inwards, marking the point of contact of the middle discocellular with the lower, vein 5 being in these cases either from the angle or from above it (or from the middle or above it where there is no appreciable angle); (2) biangulate, with vein 5 from the *lower* angle, thus from nearer (sometimes very much nearer) to 4 than to 6. The first form may be seen in *Eudule*, *Eupithecia*, *Xanthorhoë* (so far as it is homogeneous), and others, as well as in the vast majority of non-Larentiids; the second form in *Rachela*, *Oporinia* (= Epirrita), *Hydriomena* (except a few dissonant species which Hulst has included), *Marmopteryx*, and many others.

That this distinction is correlated with real phylogenetic differences, I have little doubt. Several "genera" of Guenée, upon whose system I worked in my early days, and which dissatisfied me profoundly on larval grounds, have proved to divide very satisfactorily with the aid of the discocellular character—for example his *Melanippe* and *Anticlea*.

Now, it happens that *Euchœca* (type *obliterata*, Hufn.) and *Hydrelia* (type *testaceata*, Don.) fall into group 1 (with discocellulars simple), and *Venusia* (type *cambrica*, Curt.) into group 2. There was much discussion on the American representatives of these a few years ago, and much useful revision was done, notwithstanding some regrettable differences of opinion. But no one seems to have noticed that *cambrica*, Curt.; *comptaria*, Walk.; *Pearsalli*, Dyar, and *duodecimlineata*, Pack. (= *unipecta*, Pearsall), which are so much alike superficially, all agree in the hind wing venation (discocellulars biangulate), while *lucata*, Guen., and the much-enduring

*CAN. ENT., Vol. 39, page 91.
†Proc. Roy. Soc. Victoria, Vol. 16 (New Series), page 218.

species which Mr. Pearsall named *exhumata*, but now tells us should be called *inornata*, Hulst (the *perlineata* of the figures in Packard's Monograph), belong to the *other* group (discocellulars simple), as typified by the European *testaceata*—to which, moreover, the said "*exhumata*" bears an extremely close superficial resemblance. Would it not be better to group the species after this stable character than after the secondary sexual one of the male antennæ?

I may add here that I think Meyrick was wrong in sinking *Hydrelia* to *Euchœca*, the whole *habitus* of the latter (unrepresented in America) suggests that it is *sui generis*, though I have not leisure to work out its character exhaustively, and only mention that vein 5 of hind wings is usually much nearer to 6 than to 4, cell very short, etc.

The species 3329 to 3336 in Dyar's List should, it seems to me, be distributed as follows:

VENUSIA, Curtis.

Section I.—♂ antennæ bipectinate.

3329. *cambrica*, Curtis.

Section II.—♂ antennæ unipectinate.

3330. *duodecimlineata*, Packard.

Section III.—♂ antennæ shortly ciliated.

3331. *comptaria*, Walker (not of Hulst?).

3331. (1) *Pearsalli*, Dyar (præc. var.?).

TRICHODEZIA, Warren.

3332. *albovittata*, Guenée.

3333. *Californiata*, Packard.

(3334 goes to *Eupithecia*.)

HYDRELIA, Hubner.

3335. *lucata*, Guenée.

3335. (1) *perlineata*, Auct. (Packard pro parte), = *inornata*, Hulst, (fide Pearsall) = *exhumata*, Pearsall.

3336. *albifera*, Walker.

The value of this character lies largely in the ease with which it can be observed, even by those who are not well accustomed to close study of structure; and I would point out that if, as has been suggested (though to me it seems well-nigh unthinkable), confusion ever really arises between worn specimens of *comptaria* and "*inornata*," it can instantly be set at rest in this way.

A REPLY TO MR. KIRKALDY.

BY W. L. DISTANT, LONDON, ENGLAND.

For some time past Mr. Kirkaldy has employed his leisure at Honolulu by paying much attention, in the CANADIAN ENTOMOLOGIST, to myself and my writings. It is beyond my desire to reply to his critical opinions, but as regards the accuracy of some of his assertions, I must enter my protest, as I have previously been compelled to do in the pages of the "ENTOMOLOGIST" and the "Ann. Soc. Ent. Belg.," regarding similar misstatements made by the same writer in those publications.

In the CAN. ENT., XL, p. 453, Kirkaldy refers to *Chimarrhometra*, a genus founded by Bianchi on a species previously described by myself, and asserts with considerable disapproval that I "originally described the species as *Halobates*." This statement is entirely inexact. In 1879, probably before Mr. Kirkaldy had come under the care of his first schoolmaster, I enumerated and described the Rhyncheta collected by the late Dr. Stoliczka, during the Forsyth Expedition to Kashgar, in 1873–'74. In the same year I published some anticipatory diagnoses of species, among others, of *Halobates (?) orientalis*, of which I wrote: "I have placed this species provisionally in the genus *Halobates*, to which it has great affinity; its anatomical peculiarities and sexual appendages will hereafter be figured" (Trans. Ent. Soc. Lond., 1879, p. 126). A few months subsequently this promise was fulfilled (Sec. Yarkand Miss. Rhynch., p. 12, Plate), when I referred to it as "*Gen. (?) orientalis*," and stated: "I have refrained for the present from making a new genus for the reception of this species." At the same time, from the unique spirit specimens (2), Mr. Rippon, the artist, gave no fewer than *seven* enlarged sectional figures drawn by aid of the microscope. With these facts before him (which I presume he had, or should have had), I have a right to ask what justification Kirkaldy has for the misrepresentation in writing that I "originally described the species as *Halobates*."

Of the same writer's method in criticism, so far as I am concerned, and published in American publications alone, I will give one example. In the Trans. Amer. Ent. Soc. (1906), and in connection with a proposed revision of the Capsidæ, he (p. 134) placed the genus *Angerianus*, Dist., in a tribe he proposed as *Cyclapini*. On p. 146 he actually enumerated

the same genus under "Genera not described so as to admit of approximate location." I will not pursue the action further, but will simply ask, is this serious entomology? And when Kirkaldy remarks anent *Chimarrhometra* that my "descriptions and figures are quite untrustworthy" (CAN. ENT., XL, p. 453), I will ask, in reply, whether, on the above statement of fact, Mr. Kirkaldy is to be accepted as a trustworthy controversialist?

DESCRIPTION OF *PSILOCORSIS FLETCHERELLA*, A NEW SPECIES OF MOTH OF THE FAMILY ŒCOPHORIDÆ.*

BY ARTHUR GIBSON, CENTRAL EXPERIMENTAL FARM, OTTAWA.

In the CANADIAN ENTOMOLOGIST, March, 1908, the writer published, under the name of *Cryptolechia quercicella*, Clemens, a note on some larvæ, which had been found feeding on *Populus tremuloides*, in the Arboretum of the Central Experimental Farm, Ottawa. On further study the moth reared from these larvæ proves to be an undescribed species of the genus *Psilocorsis*, as mentioned by Mr. August Busck in the Proceedings of the United States National Museum, Vol. XXXV, p. 197, 1908. As a tribute to the memory of my late chief and ever kind friend, from whom I was always receiving the greatest encouragement and help in my studies, I esteem it an honour to name it

Psilocorsis Fletcherella, n. sp.—Alar expanse, 19 mm.

Labial palpi ochreous, margined beneath and on sides with longitudinal black lines, second joint thickened with appressed scales; antennæ simple, without pecten, black, annulated with light ochreous. Face and head rust-yellow; thorax darker, with a tinge of purple; abdomen almost concolorous with thorax, lower edge of segments pale ochreous. Fore wings of a pale gold colour, rather heavily dusted with pale brown and having a purplish reflection. Outer discal spot conspicuous, blackish, inner discal spot same colour, but not so well defined. Cilia ochreous, darkened with brown. Hind wings: ground colour same as fore wings, but only lightly dusted with pale brown. Legs bright pale ochreous, shining; tarsal joints fuscous.

Described from a single female specimen; the type, Cat. No. 12185, U. S. N. M.

*From the Ottawa Naturalist, Vol. XXII, No. 10, January, 1909, pp. 226-227.

NEW PHILIPPINE MOSQUITOES.

BY C. S. LUDLOW, PH. D.
Laboratory of the Office of the Surgeon-General, U. S. Army, Washington, D. C.

Among the collection received from the Philippines in the latter part of December, 1908, were several specimens belonging to Theobald's *Oculiomyia*, a peculiar and interesting genus, the small heads and large contiguous eyes suggesting some members of the family *Acroceridæ*. The specimens sent are of a new species.

Oculiomyia Fulleri, n. sp.—♀. Head dark brown, covered with dark brown curved and forked scales, with a stripe of white flat scales laterad and brown flat scales ventrad, a few brown bristles projecting forward; antennæ brown, verticels and pubescence brown, the joints white, unscaled, basal joint testaceous; palpi brown, slender, about one-fourth the length of the proboscis; proboscis brown, slightly swollen toward the apex; clypeus brown; eyes brown, large, contiguous.

Thorax: prothoracic lobes dusky brown, practically nude; mesonotum dusky-brown, covered with brown scales and a few brown bristles; pleura testaceous, nude; scutellum brown, mid-lobe lighter, with brown curved scales; metanotum testaceous.

Abdomen brown, covered with dark brown flat scales; white lateral spots on some segments, in some specimens only on one segment, and that very indistinct, while on other specimens this spot is well and clearly marked on four segments; venter a silvery-yellow.

Legs: coxæ and trochanters light; bases and ventral aspect of femora whitish, otherwise the legs are entirely brown; ungues small, simple and equal.

Wings: membrane clear, veins with dark brown, almost black, scales, possibly partly denuded towards the base, but heavily scaled toward the apex, the scales much like *Tæniorhynchus* wing-scales, but much narrowed at their bases; first submarginal cell longer than its stem, about the same width as and longer than the second posterior cell; cross-veins practically perpendicular to the long veins; the mid cross-vein not quite so long as the posterior, and the latter distant about once and a half its own length from the mid; halteres having light stem and fuscous knob.

Length about 6 mm., the proboscis itself being nearly 2 mm.

Habitat.—Parang, Mindanao, P. I. Taken Oct. 25, 1908.

The collections were taken by Major Fuller, Surgeon U. S. Army, and were very interesting, containing besides this new species the first specimens of *Culiciomyia inornata*, Theob., received from the Islands.

NOTES ON SOME CHALCIDOIDEA.

BY J. C. CRAWFORD, BUREAU OF ENTOMOLOGY, WASHINGTON, D. C.

Megorismus Fletcheri, n. sp.—♀. Length, 1.50–1.75 mm. Bronzy-green; abdomen black, obscurely bluish or greenish; antennæ black, scape metallic; face in front of ocelli smooth, polished, the rest of the head reticulated; head and thorax with sparse long hairs, each set in a puncture; thorax reticulated, posterior margin of prothorax, parapsidal areas laterally, and scutellum back of the transverse furrow, smooth; metathorax rugose, with a short median carina and a smooth space on each side near the base; wings yellowish, nervures honey-colour; coxæ metallic, the rest of the legs testaceous; petiole stout, longitudinally rugose; abdomen smooth.

♂. Length, 1.50 mm. Similar to the female; the flagellum, however, light brownish.

Habitat.—Ottawa, Canada. Bred from *Nectarophora pisi*. (Arthur Gibson, collector.)

Type No. 12197, U. S. N. M.

Paratypes in collection Central Experimental Farm, Ottawa, Can.

Dedicated to the memory of the late Dr. Fletcher.

HEMADAS, new genus.

Type *Megorismus nubilipennis*, Ashm.

This genus belongs to the tribe *Metastenini*, Ashmead, and is distinguished by the following characters: Antennæ 13-jointed, with two ring-joints, mandibles two-toothed, clypeus at apex slightly emarginate, antennæ slightly clavate; marginal vein normal.

The following table, which includes the above new genus, will separate the females of the various genera assigned to the tribe by Dr. Ashmead, and correct some errors in the table given by him in the Classification of the Chalcidoidea:

1. Last joint of antennæ spine-like ..... *Picroscytus*, Thoms.
   = *Stylophorella*, Ashm.
   Last joint of antennæ normal ..... 2.
2. Marginal vein thickened ..... 3.
   Marginal vein not thickened ..... 4.
3. Antennæ 13-jointed ..... *Xenocrepis*, Först.
   Antennæ 12-jointed ..... *Disema*, Först.
4. Antennæ with one ring-joint ..... *Arthrolysis*, Först.
   Antennæ with more than one ring-joint ..... 5.

5. Antennæ with two ring-joints.....6.
   Antennæ with three ring-joints.....9.
6. Antennæ 12-jointed.....*Metastenus*, Walk.
   Antennæ with 13 joints.....7.
7. Clypeus with a median tooth.....*Hemitrichus*, Thoms.
   Clypeus without a median tooth.....8.
8. Mandibles three-toothed; abdomen basally maculate with yellow.....*Dimachus*, Thoms.
   Mandibles two-toothed; abdomen without yellow at base.....*Hemadas*, new genus.
9. Antennæ strongly clavate.....*Habritys*, Thoms.
   Antennæ not strongly clavate.....*Dinarmus*, Thoms.

All of the genera are said to have 13-jointed antennæ, with the exceptions of *Disema* and *Metastenus*. In specimens of *M. acanthocini*, Ashm., however, there are three ring-joints instead of two, making the antennæ 13-jointed, so that in the above table this species would run to the genus *Dinarmus*. The first ring-joint is so small that it is easily overlooked, as it was by Dr. Ashmead, and it is very likely that Walker has made the same mistake in the original description of the genus.

A NOTE ON THE HABITS OF APHILANTHOPS.

BY C. N. AINSLIE, BUREAU OF ENTOMOLOGY, WASHINGTON, D. C.

It has been for many years a matter of common knowledge that some fossorial wasps store their nests with various sorts of insects which they seize, carry away and place, in a disabled condition, in their egg-chambers for food for their larvæ when these emerge from the egg. A great number of observations have been made bearing on this subject, but much still remains to be learned. It is probable that the habits of the vast majority of species are yet practically unknown, except in a very general way. The following note may have interest, because it is believed nothing has been recorded concerning ant-catching by wasps.

Early in August, 1908, while marooned at Albuquerque, New Mexico, waiting for delayed mail, I noticed one day beside a concrete walk that bordered a vacant lot in that city a throng of large red ants which resembled *Pogonomyrmex occidentalis*. The bunch was seething with excitement, and stragglers were continually coming and going. As I watched I noticed a small quadrate-headed wasp drop from the upper air to the

hard-trodden soil, alighting without previous reconnoitering. She stood perfectly motionless, not even dressing herself after the manner of her kind when idle. Presently an ant hurried by, busy about nothing, as usual, when instantly the wasp gave chase. The ant dodged and doubled as it fled, but the wasp overtook and seized it after a very brief and intensely active resistance, for a *Pogonomyrmex* is by no means a helpless infant in a skirmish. The wasp and its still riotous victim rose heavily into the air and ascended at a sharp angle of flight, until they were lost in the blue of the sky. During the next few minutes I saw the same performance repeated again and again, with variations, until dozens of the ants had disappeared heavenward with the predatory wasps.

So intent were the wasps on their work that they seemed not in the least disturbed by my presence, and I managed to secure a number of both wasps and ants by taking quick advantage of the struggle always incident to the moment of capture.

Occasionally an ant, when pursued, would dodge around a blade of grass or rush beneath some welcome shelter and elude its hunter, but this happened in only a few cases. So swift and certain were the motions of the wasps that even with a vantage of six inches or more an ant once followed was almost certainly doomed. The wasps never, so far as I observed, assisted themselves with their wings to gain speed, but played fair with their victims and ran them down. The struggle generally lasted a second or two on the ground, and, as I have said, appeared to be continued fiercely in the air, judging from the frenzied actions of the two as they rose aloft.

It was clearly useless to attempt to locate the nest of the wasps, and I contented myself with observing the manner of capture. Some day some one will be at the nest when the ants are brought in, and the rest of the story will then be available.

Mr. J. C. Crawford, of the National Museum, has kindly determined the predatory wasp as *Aphilanthops taurulus*, Ckll. Another species taken at the same time and under the same conditions is possibly an undescribed form of the same genus. The ants, the victims of the assault, have been identified by Dr. W. H. Wheeler as *Pogonomyrmex barbatus*, F. Smith, subsp. *rugosus*, Emery.

I learn that several wasps of a genus nearly allied to *Aphilanthops* are preserved in the National Museum with ants pinned with them. This would argue in favour of a habit similar to the one recorded above, but no notes accompany these specimens referred to.

MOSQUITO COMMENT.

BY HARRISON G. DYAR AND FREDERICK KNAB, WASHINGTON, D. C.

Dr. Ludlow addresses her remarks (CAN. ENT., XLI, 21, 1909) to the senior author of this note. In a joint article, like the one in question (CAN. ENT., XL, 312, 1908), the responsibility is jointly shared, and Dr. Ludlow should have addressed us both. Any other course is likely to lead to error and to the imputation of responsibility in the wrong quarter, as in the present instance.

We are glad to learn that Dr. Ludlow uses precautions to prevent, as far as may be, errors arising from the unfortunate manner in which her specimens are preserved. Whether the error in the locality given for *Anopheles perplexens* arose as suggested by us, or as Dr. Ludlow now thinks probable, is immaterial to the point at issue; the point gained is that Dr. Ludlow now admits the error, and we may with the more security omit the species in any consideration of the North American fauna.

We would earnestly suggest to Dr. Ludlow's consideration such a disposition of her types that they would be easily accessible to students, either at the Surgeon-General's office or at the National Museum.

We would point out that the new genus, *Calvertia*, is preoccupied by *Calvertius*, Sharp (Coleoptera), and *Calvertia*, Warren (Lepidoptera).

Speaking of preoccupied names, the Culicid genus *Carrollia*, Lutz, has a narrow escape from that fate. We note the existence of *Carolia*, Cantr. (Mollusca), and *Carollia*, Gray (Mammalia), which will certainly cause confusion, yet all must stand under the latest rules. We do not think that the rule should be held to apply to terminations of names which may be in masculine, feminine, neuter or barbarous form, as the distinguishing of these is an unnecessary tax on the memory, but it undoubtedly applies to differences of single letters in the body of the name. We are able to recognize the genus *Carrollia*, Lutz, as distinct from *Culex*, the type being *Carrollia iridescens*, Lutz, and to add to it a second species, *Melanoconion Urichii*, Coquillett (CAN. ENT., XXXVIII, 61, 1906), which will now stand as *Carrollia Urichii*, Coquillett.

The following new species has come to our notice:

Culex trachycampa, n. sp.—Proboscis black, moderately long and slender, hardly swollen at the tip. Palpi black-scaled. Mesonotum blackish, clothed with dark bronzy-brown scales; abdomen subcylindrical, depressed, truncate at tip, dark-scaled above with coppery lustre, beneath with distinct white basal segmental bands. Legs blackish with bronzy

lustre, the femora pale beneath to near the tip. Wings rather broad, the outstanding scales of the veins linear and narrowly ovate, denser on the forks of the second and fourth veins. Claws simple in the female. Length about 2.5 mm.

In the male the palpi are slightly longer than the proboscis, the apical portion hairy, bronzy-black throughout. Wings narrower than in the female, without the longest and narrowest scales; the coloration similar.

One male and one female, Las Cascadas, Canal Zone, Panama. (A. Busck, collector.)

Type No. 12194, U. S National Museum.

A new mosquito has also come to hand from Banff, Alberta, for which we propose the name:

Aedes Sansoni, n. sp.—Closely allied to *Aedes subcantans*, Felt, but larger and darker in colour, the scales of the wings entirely black, not intermixed brown and whitish on the costa, as they are in *A. subcantans*.

Five specimens, Banff, Alberta, Canada. Collected in the summer of 1908. (N. B. Sanson.)

Type No. 12195, U. S. National Museum.

BOOK NOTICES.

DARWINISM TO-DAY. By Professor Vernon L. Kellogg. Pp. XII. + 403. New York: Henry Holt & Co.

The fifty years which have elapsed since the publication of Darwin's "Origin of Species," have witnessed the ardent prosecution of biological research in many directions. A vast number of new facts have been collected, correlated and their interpretation attempted. In the light of this new knowledge the various aspects of the theory of evolution by natural selection have been critically examined, in a manner much more searching than was thought possible to Darwin's contemporaries. Yet at the present time we still have the greatest diversity of opinion. On the one hand are scientific critics, of no mean influence, maintaining that natural selection is now discredited as the only, or even the chief, agent in the organization of species, and at the other extreme are those who are still firm believers in its efficiency.

The literature of the subject is largely controversial, widely scattered, and much of it in German, and in presenting the gist of it in a form which enables the biological student or the general reader to form a sound estimate of the present status of Darwinism, Prof. Kellogg has performed a very valuable piece of work.

After a preliminary definition of Evolution and Darwinism, the author proceeds to consider in detail the various attacks which have been made upon the latter, for example, those based upon the insignificance of fluctuating variations; the uselessness, in the struggle for existence, of many specific characters; the necessity for coincident variation; secondary sexual characters; complete degeneration of parts; elimination of connecting forms, etc. This is followed by a statement of the arguments put forward by the Darwinians in defence of their position.

A summary is then given of the various theories of species formation which have been proposed as auxiliaries, or alternatives, to that of natural selection, e. g., panmixia, germinal selection, orthoplasy, Lamarckism, orthogenesis, heterogenesis, etc., and the final chapter under the title, "Darwinism's Present Standing," is devoted to a summing up of the situation.

The work is written in a very readable style, meets a decided need, and can be recommended to all interested in the problems of evolution.

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BRITISH FLIES. Vol. V. By G. H. Verrall, F. E. S. 814 pp. London, 1909. Gurney and Jackson.

The second published volume of Mr. Verrall's projected series is number 5 of the entire plan, and includes the following families: Stratiomyidæ, Acanthomeridæ, Leptidæ (including sub-families Xylophaginæ and Coenomyinæ), Tabanidæ, Nemestrinidæ, Cyrtidæ, Bombylidæ, Therevidæ, Scenopinidæ, Mydaidæ, Apioceridæ and Asilidæ.

The treatment is full, almost encyclopædic, bringing together a vast mass of information about the various species, including larval characters and habits, as well as those of the adult, as far as the former are known. Even the families not occurring in Great Britain are provided with tables of genera aud figures.

The illustrations are exceptionally fine, being drawn for this work by Mr. J. E. Collin, F. E. S. They are scattered through the text in convenient places for references, and are of a quality to delight the entomological eye, unsurpassed by anything ever presented in this order of insects.

Mr. Verrall does not accept the genera of Meigen's 1800 paper, recently discussed in this journal; in one of his notes (p. 772) he says:—"The contention that Meigen's genera of 1800 should be revived and claim priority, is on a par with the discovery of certain Chicago historians that the annulment of one of the marriages of King Henry VIII. was

invalid, and that, consequently, King Edward VII. is not the King of England!"

Mr. Verrall is to be congratulated on the completion of the second volume of the magnificent series planned by him. Such work is not of merely local or even national value, but affects entomology throughout the world. It sets a higher standard for us all.

J. M. ALDRICH, Moscow, Ida.

SECRETION OF HYDROCYANIC ACID BY *LEPTODESMUS HAYDENIANUS*, WOOD.

A number of instances of secretions of free hydrocyanic acid in the Myriapods of the family *Polydesmidæ* have been recorded, and it is quite probable that this power is possessed by all the members of the family. In 1882 Egeling* discovered that *Paradesmus gracilis*, Koch,† secreted besides benzaldehyde free hydrocyanic acid. Weber (Archiv. f. Mikr. Anat., V. 21, 1882) showed that this secretion was diffused only from certain segments, and that the repugnatory glands, which produce the secretion, open near the middle dorsal line. Haase (Sitzungs. b. d. Gesell. naturf. Freunde zum Berlin, Jahrgang, p. 97, 1889) again refers to this curious secretion. In 1890 W. M. Wheeler reported (Psyche, V. 5, p. 442) this secretion in *Polydesmus (Fontaria) virginiensis*, Drury, an abundant species in the middle western States. Early last February, in the foothills near Palo Alto, I collected from beneath stones and logs a number of specimens of *Leptodesmus (Polydesmus) Haydenianus*, Wood, a common and variable Myriapod in this vicinity, and ranging northward to Oregon. They were collected alive, and when the bottle in which they were contained was opened, the strong and pungent odour of prussic acid was almost overpowering. A chemist friend of mine applied the test, and the result showed free hydrocyanic acid. This test, as given by Wheeler, is quite simple: "A few of the *Polydesmi* were ground up in a mortar with a small quantity of water. A few drops of potassium hydrate and ferrous sulphate were then added to the solution obtained by filtering the mass. On the application of gentle heat, and the further addition of a little ferric chloride to dissolve the precipitated ferrous and ferric hydrates, the faint but distinct tinge of Prussian blue attested the presence of free hydrocyanic acid."—K. R. COOLIDGE, Palo Alto, Calif.

*Pflüger's Archiv. f. d. ges. Physiol., V. 28, 1882.

†Indigenous to the Fiji Islands, Moluccas, etc., but now acclimitized in European hothouses.

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